

Project Investment Justification

DTS Data Center Storage Refresh

DE21020

Department of Economic Security

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1. GENERAL INFORMATION

PIJ ID: DE21020

PIJ Name: DTS Data Center Storage Refresh

Account: Department of Economic Security

Business Unit Requesting: Department of Economic Securities DTS/IT Operations

Sponsor: Clayton Sikes

Sponsor Title: Deputy CIO

Sponsor Email: claytonsikes@azdes.gov

Sponsor Phone: (480) 589-7398

2. MEETING PRE-WORK

2.1 What is the operational issue or business need that the Agency is trying to solve? (i.e....current process is manual, which increases resource time/costs to the State/Agency, and leads to errors...):

Response: The storage equipment that resides in our data center is nearing the end of support. Additionally, the large physical footprint is seeing a greater number of component failures as well as excessive power consumption. To ensure system uptime, and maintain overall system support and readiness, a system refresh is needed.

2.2 How will solving this issue or addressing this need benefit the State or the Agency?

Response: The proposed solution will ensure that DES maintains current reliability and support levels while at the same time reducing our physical storage footprint in the datacenter. The solution also allows for all flash data storage which will increase overall performance, reduce power requirements, simplify infrastructure management, and allow for DR cloud-based storage efforts.

2.3 Describe the proposed solution to this business need.

Response: The solution selected is in keeping with the Cisco UCS Flexpod validated design consisting of technologies provided by three distinct partners (Cisco, VMware, and NetApp). The only supported solution that allows for a non-disruptive upgrade of hardware is through the use of NetApp storage components. The solution will present all flash (high speed SSD) storage to the UCS Flexpod in a configuration that will allow existing data to be migrated over to the new high speed data volumes. The existing DR component will be migrated to Azure storage and will reside on NetApp CVO volumes in the cloud. The transition of data from the DES network to Azure will be facilitated via an Expressroute instance.

NOTE: Financial discrepancy of approximately of \$90 due to rounding errors.

Approved by CIO, Mark Darmer, on May 21, 2021.

Approved by DES Director, Michael Wisheart, on May 24, 2021.

2.4 Has the existing technology environment, into which the proposed solution will be implemented, been documented?

Yes

2.4a Please describe the existing technology environment into which the proposed solution will be implemented.

2.5 Have the business requirements been gathered, along with any technology requirements that have been identified?

Yes

2.5a Please explain below why the requirements are not available.

3. PRE-PIJ/ASSESSMENT

3.1 Are you submitting this as a Pre-PIJ in order to issue a Request for Proposal (RFP) to evaluate options and select a solution that meets the project requirements?

No

3.1a Is the final Statement of Work (SOW) for the RFP available for review?

3.2 Will you be completing an assessment/Pilot/RFP phase, i.e. an evaluation by a vendor, 3rd party or your agency, of the current state, needs, & desired future state, in order to determine the cost, effort, approach and/or feasibility of a project?

No

3.2a Describe the reason for completing the assessment/pilot/RFP and the expected deliverables.

3.2b Provide the estimated cost, if any, to conduct the assessment phase and/or Pilot and/or RFP/solicitation process.

3.2e Based on research to date, provide a high-level cost estimate to implement the final solution.

4. PROJECT

4.1 Does your agency have a formal project methodology in place?

Yes

4.2 Describe the high level makeup and roles/responsibilities of the Agency, Vendor(s) and other third parties (i.e. agency will do...vendor will do...third party will do).

DES will procure equipment. Chosen vendor (cStor) will perform equipment installation and configuration and will perform all data migrations (both on prem and to Azure). DES will conduct all overall project management duties.

4.3 Will a PM be assigned to manage the project, regardless of whether internal or vendor provided?

Yes

4.3a If the PM is credentialed, e.g., PMP, CPM, State certification etc., please provide certification information.

4.4 Is the proposed procurement the result of an RFP solicitation process?

No

4.5 Is this project referenced in your agency's Strategic IT Plan?

Yes

5. SCHEDULE

5.1 Is a project plan available that reflects the estimated Start Date and End Date of the project, and the supporting Milestones of the project?

No

5.2 Provide an estimated start and finish date for implementing the proposed solution.

Est. Implementation Start Date

Est. Implementation End Date

7/1/2021 12:00:00 AM

3/31/2022 12:00:00 AM

5.3 How were the start and end dates determined?

Other

5.3a List the expected high level project tasks/milestones of the project, e.g., acquire new web server, develop software interfaces, deploy new application, production go live, and estimate start/finish dates for each, if known.

Milestone / Task	Estimated Start Date	Estimated Finish Date
Communications	07/01/21	12/31/21
Readiness & Plan	07/01/21	09/01/21
Design	09/02/21	09/24/21
Build and deploy	09/28/21	11/05/21
Resume steady state	11/05/21	12/31/21
Payment of Invoices	01/01/22	03/31/22

5.4 Have steps needed to roll-out to all impacted parties been incorporated, e.g. communications, planned outages, deployment plan?

Yes

5.5 Will any physical infrastructure improvements be required prior to the implementation of the proposed solution. e.g., building reconstruction, cabling, etc.?

No

5.5a Does the PIJ include the facilities costs associated with construction?

5.5b Does the project plan reflect the timeline associated with completing the construction?

6. IMPACT

6.1 Are there any known resource availability conflicts that could impact the project?

No

6.1a Have the identified conflicts been taken into account in the project plan?

6.2 Does your schedule have dependencies on any other projects or procurements?

No

6.2a Please identify the projects or procurements.

6.3 Will the implementation involve major end user view or functionality changes?

No

6.4 Will the proposed solution result in a change to a public-facing application or system?

No

7. BUDGET

7.1 Is a detailed project budget reflecting all of the up-front/startup costs to implement the project available, e.g, hardware, initial software licenses, training, taxes, P&OS, etc.?

Yes

7.2 Have the ongoing support costs for sustaining the proposed solution over a 5-year lifecycle, once the project is complete, been determined, e.g., ongoing vendor hosting costs, annual maintenance and support not acquired upfront, etc.?

Yes

7.3 Have all required funding sources for the project and ongoing support costs been identified?

Yes

7.4 Will the funding for this project expire on a specific date, regardless of project timelines?

No

7.5 Will the funding allocated for this project include any contingency, in the event of cost over-runs or potential changes in scope?

No

8. TECHNOLOGY

8.1 Please indicate whether a statewide enterprise solution will be used or select the primary reason for not choosing an enterprise solution.

There is not a statewide enterprise solution available

8.2 Will the technology and all required services be acquired off existing State contract(s)?

Yes

8.3 Will any software be acquired through the current State value-added reseller contract?

Yes

8.3a Describe how the software was selected below:

The State value-added reseller contract is CDW-G.

8.4 Does the project involve technology that is new and/or unfamiliar to your agency, e.g., software tool never used before, virtualized server environment?

No

8.5 Does your agency have experience with the vendor (if known)?

Yes

8.6 Does the vendor (if known) have professional experience with similar projects?

Yes

8.7 Does the project involve any coordination across multiple vendors?

Yes

8.8 Does this project require multiple system interfaces, e.g., APIs, data exchange with other external application systems/agencies or other internal systems/divisions?

No

8.9 Have any compatibility issues been identified between the proposed solution and the existing environment, e.g., upgrade to server needed before new COTS solution can be installed?

No

8.9a Describe below the issues that were identified and how they have been/will be resolved, or whether an ADOA-ASET representative should contact you.

8.10 Will a migration/conversion step be required, i.e., data extract, transformation and load?

Yes

8.11 Is this replacing an existing solution?

Yes

8.11a Indicate below when the solution being replaced was originally acquired.

This is a replacement of the exiting NetApp infrastructure procured in June of 2015.

8.11b Describe the planned disposition of the existing technology below, e.g., surplus, retired, used as backup, used for another purpose:

Existing equipment will be sent to surplus.

8.12 Describe how the agency determined the quantities reflected in the PIJ, e.g., number of hours of P&OS, disk capacity required, number of licenses, etc. for the proposed solution?

All quantities were determined based on DES engineer and NetApp review and analysis of auto support data collection capabilities within the system.

8.13 Does the proposed solution and associated costs reflect any assumptions regarding projected growth, e.g., more users over time, increases in the amount of data to be stored over 5 years?

No

8.14 Does the proposed solution and associated costs include failover and disaster recovery contingencies?

Yes

8.14a Please select why failover and disaster recovery is not included in the proposed solution.

8.15 Will the vendor need to configure the proposed solution for use by your agency?

Yes

8.15a Are the costs associated with that configuration included in the PIJ financials?

Yes

8.16 Will any app dev or customization of the proposed solution be required for the agency to use the project in the current/planned tech environment, e.g. a COTS app that will req custom programming, an agency app that will be entirely custom developed?

No

8.16a Will the customizations inhibit the ability to implement regular product updates, or to move to future versions?

8.16b Describe who will be customizing the solution below:

8.16c Do the resources that will be customizing the application have experience with the technology platform being used, e.g., .NET, Java, Drupal?

8.16d Please select the application development methodology that will be used:

8.16e Provide an estimate of the amount of customized development required, e.g., 25% for a COTS application, 100% for pure custom development, and describe how that estimate was determined below:

8.16f Are any/all Professional & Outside Services costs associated with the customized development included in the PIJ financials?

8.17 Have you determined that this project is in compliance with all applicable statutes, regulations, policies, standards & procedures, incl. those for network, security, platform, software/application &/or data/info found at aset.az.gov/resources/psp?

Yes

8.17a Describe below the compliance issues that were identified and how they have been/will be resolved, or whether an ADOA-ASET representative should contact you:

8.18 Are there other high risk project issues that have not been identified as part of this PIJ?

No

8.18a Please explain all unidentified high risk project issues below:

9. SECURITY

9.1 Will the proposed solution be vendor-hosted?

No

9.1a Please select from the following vendor-hosted options:

Commercial data center environment, e.g AWS, Azure

9.1b Describe the rationale for selecting the vendor-hosted option below:

DR solution was selected to reside in Azure due to existing Azure footprint and the fact that NetApp partners with Azure for CVO deployment.

9.1c Has the agency been able to confirm the long-term viability of the vendor hosted environment?

Yes

9.1d Has the agency addressed contract termination contingencies, e.g., solution ownership, data ownership, application portability, migration plans upon contract/support termination?

Yes

9.1e Has a Conceptual Design/Network Diagram been provided and reviewed by ASET-SPR?

No

9.1f Has the spreadsheet located at <https://aset.az.gov/arizona-baseline-security-controls-excel> already been completed by the vendor and approved by ASET-SPR?

No

9.2 Will the proposed solution be hosted on-premise in a state agency?

Yes

9.2a Where will the on-premise solution be located:

Agency's data center

9.2b Were vendor-hosted options available and reviewed?

Yes

9.2c Describe the rationale for selecting an on-premise option below:

An in house option was selected for the storage refresh due to the overall cost of data migration. Data storage in the Azure cloud was estimated at \$2 million per month not including compute functionality.

9.2d Will any data be transmitted into or out of the agency's on-premise environment or the State Data Center?

No

9.3 Will any PII, PHI, CGIS, or other Protected Information as defined in the 8110 Statewide Data Classification Policy be transmitted, stored, or processed with this project?

Yes

9.3a Describe below what security infrastructure/controls are/will be put in place to safeguard this data:

- Hosted in a FedRAMP certified government cloud environment (need to ensure that both the platform and the software/application are secure) Azure is FedRamp Certified
- Whether or not DES's data is segregated and isolated from other client's data (for vendor-hosted environments) Data is segregated in Iron Mountain and in Azure.
- How the data will be accessed (i.e. secure sign-on, user authentication, etc.) N/A
- How the data is encrypted? Is it encrypted in transit as well as "at rest"? The solution will provide for at rest data encryption.
- Where is the data actually hosted? Is the Data Center located within U.S. boundaries? Are the data and any data backups stored within the U.S.? Iron Mountain and Azure
- Data passing between DES and non-DES hosted environments must follow established DES architectural model for external vendors. N/A

10. AREAS OF IMPACT

Application Systems

Database Systems

Software

COTS Application Acquisition

Hardware

Storage Area Network Devices

Hosted Solution (Cloud Implementation)

Microsoft Azure

Security

Encryption

Telecommunications

Enterprise Solutions

Disaster Recovery/Business Continuity

Contract Services/Procurements

11. FINANCIALS

Description	PIJ Category	Cost Type	Fiscal Year Spend	Quantity	Unit Cost	Extended Cost	Tax Rate	Tax	Total Cost
DS224C-SL-15.3-24SN-C	Hardware	Development	1	3	\$55,125	\$165,376	860.00 %	\$14,222	\$179,598
Azure ExpressRoute 5Gbps to Government Tennant - Premium	Software	Development	1	12	\$6,475	\$77,700	860.00 %	\$6,682	\$84,382
Azure ExpressRoute 5Gbps to Commercial Tennant - Premium	Software	Development	1	12	\$5,180	\$62,160	860.00 %	\$5,346	\$67,506
2x Equinix Connection: Azure Government - 5 Gbps	License & Maintenance Fees	Development	1	12	\$3,475	\$41,700	860.00 %	\$3,586	\$45,287
2x Equinix Connection: Azure Commercial - 5 Gbps	License & Maintenance Fees	Development	1	12	\$2,930	\$35,160	860.00 %	\$3,024	\$38,184
DS224C--15.3-1 2SN-C	Hardware	Development	1	1	\$27,903	\$27,903	860.00 %	\$2,400	\$30,303
AFF-A700A-201-N-C	Hardware	Development	1	1	\$27,633	\$27,633	860.00 %	\$2,376	\$30,009
X91135AN-C	Hardware	Development	1	2	\$1,452	\$2,903	860.00 %	\$250	\$3,153
X91143A	Hardware	Development	1	4	\$752	\$3,008	860.00 %	\$259	\$3,266
X6589-R6	Hardware	Development	1	16	\$81	\$1,289	860.00 %	\$111	\$1,400
X6589-R6	Hardware	Development	1	8	\$81	\$645	860.00 %	\$55	\$700
X6569-R6	Hardware	Development	1	8	\$102	\$820	860.00 %	\$71	\$890
X66250-2	Hardware	Development	1	12	\$35	\$416	860.00 %	\$36	\$451
X66250-5	Hardware	Development	1	4	\$40	\$158	860.00 %	\$14	\$172
CI-SUBSPRM-36 M	Software	Development	1	1700	\$69	\$118,133	860.00 %	\$10,159	\$128,292
SUBS-CVOHA-BY OL-3YR	Software	Development	1	4	\$11,374	\$45,497	860.00 %	\$3,913	\$49,410
SW-CORE-BUNDLE-SSD-A05-C 5yr	Software	Development	1	12852	\$8	\$107,314	860.00 %	\$9,229	\$116,543

SW-DATAPRO-B DLSSD-A05-C 5yr	Software	Develop ment	1	12852	\$3	\$35,729	860.00 %	\$3,073	\$38,801
CS-G1-SE- SupportEdge Advisor; 60 Months ADVISOR	License & Maintena nce Fees	Develop ment	1	1	\$268,046	\$268,046	860.00 %	\$23,052	\$291,098
CS-4HR- 4hr Parts Replacement; 60 Months REPLACEMENT	License & Maintena nce Fees	Develop ment	1	1	\$53,609	\$53,609	860.00 %	\$4,610	\$58,220
PS Deployment,Clou d Volumes ONTAP	Professio nal & Outside Services	Develop ment	1	2	\$3,200	\$6,400	0.00 %	\$0	\$6,400
NetApp Project Management	Professio nal & Outside Services	Develop ment	1	1	\$700	\$700	0.00 %	\$0	\$700
Daily Engineer	Professio nal & Outside Services	Develop ment	1	71	\$2,100	\$149,100	0.00 %	\$0	\$149,100
Cstor Project Management	Professio nal & Outside Services	Develop ment	1	1	\$15,000	\$15,000	0.00 %	\$0	\$15,000
MS Azure	License & Maintena nce Fees	Develop ment	1	12	\$20,902	\$250,821	860.00 %	\$21,571	\$272,391
MS Azure Yrs 2-5	License & Maintena nce Fees	Operatio nal	2	1	\$1,003,283	\$1,003,283	860.00 %	\$86,282	\$1,089,565
CS-G1-SE- SupportEdge Advisor; Yrs 2-5 ADVISOR	License & Maintena nce Fees	Operatio nal	5	1	\$1,072,184	\$1,072,184	860.00 %	\$92,208	\$1,164,391
CS-4HR- 4hr Parts Replacement; Yrs 2-5 REPLACEMENT	License & Maintena nce Fees	Operatio nal	5	1	\$214,437	\$214,437	860.00 %	\$18,442	\$232,878
CI-SUBSPRM-Yr 2-5	Software	Operatio nal	5	1	\$472,554	\$472,554	860.00 %	\$40,640	\$513,194
SUBS-CVOHA-BY OL-Yrs 2-5	Software	Operatio nal	5	1	\$181,988	\$181,988	860.00 %	\$15,651	\$197,639
SW-CORE- BNDLE-SSD-A05- C Yrs 2-5	Software	Operatio nal	5	1	\$429,360	\$429,360	860.00 %	\$36,925	\$466,285
SW-DATAPRO-B DLSSD-A05-C Yrs 2-5	Software	Operatio nal	5	1	\$143,120	\$143,120	860.00 %	\$12,308	\$155,428

2x Equinix Connection: Azure Commercial - 5 Gbps Yrs 2-5	License & Maintenance Fees	Operational	5	1	\$140,641	\$140,641	860.00 %	\$12,095	\$152,737
2x Equinix Connection: Azure Government - 5 Gbps Yrs 2-5	License & Maintenance Fees	Operational	5	1	\$166,801	\$166,801	860.00 %	\$14,345	\$181,146
Azure ExpressRoute 5Gbps to Commercial Tennant - Premium Yrs 2-5	Software	Operational	5	1	\$248,640	\$248,640	860.00 %	\$21,383	\$270,023
Azure ExpressRoute 5Gbps to Government Tennant - Premium Yrs 2-5	Software	Operational	5	1	\$310,800	\$310,800	860.00 %	\$26,729	\$337,529

Base Budget (Available)	Base Budget (To Be Req)	Base Budget % of Project
\$837,302	\$0	13%
APF (Available)	APF (To Be Req)	APF % of Project
\$0	\$0	0%
Other Appropriated (Available)	Other Appropriated (To Be Req)	Other Appropriated % of Project
\$25,489	\$0	0%
Federal (Available)	Federal (To Be Req)	Federal % of Project
\$2,712,629	\$0	43%
Other Non-Appropriated (Available)	Other Non-Appropriated (To Be Req)	Other Non-Appropriated % of Project
\$2,796,742	\$0	44%

Total Budget Available	Total Development Cost
\$6,372,162	\$1,611,257
Total Budget To Be Req	Total Operational Cost
\$0	\$4,760,815
Total Budget	Total Cost
\$6,372,162	\$6,372,072

12. PROJECT SUCCESS

Please specify what performance indicator(s) will be referenced in determining the success of the proposed project (e.g. increased productivity, improved customer service, etc.)? (A minimum of one performance indicator must be specified)

Please provide the performance objective as a quantifiable metric for each performance indicator specified.

Note: The performance objective should provide the current performance level, the performance goal, and the time period within which that performance goal is intended to be achieved. You should have an auditable means to measure and take corrective action to address any deviations.

Example: Within 6 months of project completion, the agency would hope to increase "Neighborhood Beautification" program registration by 20% (3,986 registrants) from the current registration count of 19,930 active participants.

Performance Indicators

- Successful migration of data to new volumes with zero disruptions.
- Decommissioning of legacy equipment.
- Disaster Recovery (DR) Presence in Azure.

13. CONDITIONS

Conditions for Approval

Should development costs exceed the approved estimates by 10% or more, or should there be significant changes to the proposed technology scope of work or implementation schedule, the Agency must amend the PIJ to reflect the changes and submit it to ADOA-ASET, and ITAC if required, for review and approval prior to further expenditure of funds.

Monthly reporting on the project status is due to ADOA-ASET no later than the 15th of the month following the start of the project. Failure to comply with timely project status reporting will affect the overall project health. The first status report for this project is due on August 15, 2021.

14. OVERSIGHT SUMMARY

Project Background

The Department of Economic Security (DES) strengthens Arizona by helping residents reach their potential through temporary assistance for those in need, and care for the vulnerable. The Department of Technology Services (DTS) consolidates application technologies to facilitate the development of a workforce able to deliver IT solutions when needed. DTS focuses on services that can best be delivered in-house and serves as a general contractor to deliver services requiring outside expertise. The storage equipment that resides in the Iron Mountain data center facility is reaching the end of support. With this project, DTS is refreshing the equipment to maintain the current reliability, support, and reduce the physical footprint.

Business Justification

The equipment currently in the data center is reaching end of life, and the physical footprint needs to be reduced. This upgrade of equipment provides reliable and high speed data structures across the DES enterprise for both structured and unstructured data. Additionally, it will provide both “elasticity” and “scalability” for cloud offerings where DES enterprise data may be hosted. It will allow for faster storage resource provisioning time for back end business processes to ensure that DTS customers have quicker access to data and create a path to a cloud first strategy to address disaster recovery and business continuity.

Costs of hardware for network attached storage (NAS)/storage area networks (SAN) data storage and virtualization, servers, and middleware can be extensive. Effective and well-planned hardware refresh efforts can eliminate some of these costs. Business losses caused by outages can quickly exceed hardware, software, and maintenance costs. Supported storage infrastructure configurations mitigate this. By moving the agency’s disaster recovery (DR) storage management to Azure, DES will also move the organization over to more of a pay as you go model, shifting us further from a CAPEX model to an OPEX model.

Implementation Plan

An in house option was selected for the storage refresh due to the overall cost of data migration. For this portion, data storage in the Azure cloud was estimated at \$2 million per month not including compute functionality. Only the existing DR component will be migrated to Azure storage and will reside on NetApp CVO volumes in the cloud. No data is exchanged with the vendor in the Azure environment. NetApp is a solution within the hardware refresh managed and controlled by DES.

Due to this hardware refresh being on-prem, no AZRamp is required by ADOA-ASET.

DES will procure equipment and will conduct all overall project management duties. The chosen vendor (cStor) will perform equipment installation and configuration and will perform all data migrations both on prem and to Azure. Both the agency and the vendor will handle the data migration and Cloud Volumes ONTAP (CVO) Deployment.

Vendor Selection

Three quotes were not provided by the agency. The solution selected is in keeping with the Cisco UCS Flexpod validated design consisting of technologies provided by three distinct partners (Cisco, VMware, and NetApp). The only supported solution that allows for a non-disruptive upgrade of hardware is through the use of NetApp storage components. It is in the opinion of ADOA-ASET the agency is in compliance with the due diligence requirements.

Budget or Funding Considerations

Milestones are based on estimated dates on hardware arrival. Payment of years 2-5 MS Azure operational costs will be made after year one development in full. The remaining years 2-5 of repeating operational costs have been consolidated into single line items per item on the PIJ financials chart. Funding for this effort is 43% Federal funds, 13% Base budget funds, and 44% other non-appropriated funds.

15. PIJ REVIEW CHECKLIST

Agency Project Sponsor
Clayton Sikes

Agency CIO (or Designee)
Mark Darmer

Agency ISO (or designee)
Dan Wilkens

OSP Representative

ASET Engagement Manager

ASET SPR Representative
Thomas Considine

Agency SPO Representative
David Steuber

Agency CFO
Roberta Blyth